

TERMS OF REFERENCE

FOR THE PREPARATION OF STRUCTURE PLANS AND LOCAL AREA PLANS FOR VARIOUS TOWNS IN BHUTAN

Background

Bhutan is rapidly urbanizing. This is primarily due to very successful education and health programmes and rural-urban migration, which is a result of the perceived better life in the urban areas and lesser incomes in the rural areas despite their hard work. It has been envisaged that by the year 2020 the urban population is likely to reach 50%. This has called for a focused development in the urban areas to absorb the increased population by way of promoting a planned urban growth and explore possibilities of urban employment. Presently there are 54 declared urban centres ranging from small settlements to large towns like Thimphu and Phuntsholing. Though some of the centres are very small in terms of population, these centres are providing off-farm employment and also serve as service centres to their respective hinterlands. Large development projects, like hydropower projects, national roads and social infrastructure, have created a demand for manual labour and a market for farm surplus. This suggests a growth in economic prosperity, with people now seeking urban employment, investment in urban assets and simultaneous migration to the urban areas.

The need for plans is urgent. Many areas of the urban settlements are growing in a chaotic manner, which will hamper these cities forever. In other new areas development has been frozen due to the lack of any plan. Meanwhile the demand for housing stock is on the rise, traffic flow problems are increasingly evident at several junctions, and the shortage of parking is recognized as a growing problem.

The DUDES invites applications from individuals or consulting firms to express their interest to prepare the plans for some of the towns in Bhutan.

Qualification: Masters in Urban and Regional Planning / Urban Design or any other related field with minimum of 5 years experience. People with working experience in Bhutan or in similar situation will be preferred.

Duty Station: Thimphu with frequent travel to the project areas.

Remuneration: The applicants are requested to express their expectations on the remuneration after going through this ToR. **The rules and policies on the taxes can be checked from the Ministry of Finance website (www.mof.gov.bt).**

PHASE I: PREPARATION OF STRUCTURE PLANS

Objectives

The Department of Urban Development and Engineering Services (DUDES) under the Ministry of Works and Human Settlement (MoWHS) is mandated to prepare urban development plans for the promotion of a planned physical setting in all the emerging towns. The preparation of structure plans and local area plans has been prioritized for the selected towns. The Structure Plans would lay out the broad land uses, designate types of development in the form of zones; specify the related development control rules for each zone; assess the infrastructure and services requirements and lay out an appropriate road network. The plan must include a strong housing component and provide directives for community services and facilities. The plan must clearly reflect the inter-relationships of these facets.

The Structure Plans will cover the municipal areas identified by the Dzongkhag Administration of the respective towns and high growth areas bordering these towns that are likely to be included in the town area in the next ten to fifteen years. It will involve a review of the existing ground realities and an evaluation of the future requirements. Gaps in the present infrastructure networks must be identified for filling them. New requirements must also be accessed and planned for.

In brief the Structure Plan would be composed of the following components:

Environmental Assets

The watershed areas, streams and rivers must be protected. A system of green spaces, which connect them together, will be identified. Geologically fragile areas, flood prone areas, topography including steep slopes > 30%; must be protected and restricted for development.

Roads and Transport

The Structure Plan will study the existing and future road networks, the parking requirements, road junctions, needs for bridges and culverts and related infrastructure. Bus routes, pullovers, and related facilities would be planned for. Taxies and their stands would be planned for. Junctions would be assessed and planned for. Options for pedestrianizing streets would be assessed and planned for, as would a number of pedestrian pathways. Particular interest will be placed on Primary, Secondary and Access roads in the plan.

Land Use and Zoning

The Existing Land Use Plan will be generated from the Base Map. This will be analyzed for its suitability in terms of carrying capacity of infrastructure and in terms of the impact of various uses on the road and transport system. Adjustments will be made in the existing land use, and a new land use system will be planned, taking into account the new areas of the city. A system of zoning will be established which will tag with each zone a land use schedule, maximum density allowed, maximum FAR, building set-backs and percentage of ground coverage on plots. Requirements for parking spaces, septic tanks and other essential on-plot infrastructure will be stated. Requirements for setting various structures away from roads/building frontages will be stated (such as water storage tanks, out-houses, sheds, carports, etc). The Structure

Plan preparation exercise shall study the appropriateness and suitability of the emerging trends for land use in the currently identified commercial as well as other zones.

Housing and Shelter Systems

The Housing and Shelter Plan will be based on the analysis of the population of the respective towns for a 20 years period. The Plan will identify the location of existing housing types, including hutments. It will explore the potentials of hutments up-gradation, re-location and site and services options. It will look at the links between land use and reservations for residential uses and maximum densities such that a variety of shelter options can emerge. These may include ownership apartments, row houses and individual bungalows in a balanced proportion, which represents the socio-economic structure of the respective city.

Development Control Rules

As noted above the Development Control Rules would be related to various zones in the towns. These would include specifications of uses, percentages of coverage, setbacks from roads and from property lines, densities, Floor Area Ratios; and provision for on-site infrastructure. The Development Control Rules would also cover fire safety regulations, control of temporary and utilities structures. It would have Guidelines for Architectural and other Urban Design Regulations. Some of these controls would be architectural regulations (roof, cornice and window designs). There would also be Building Byelaws regulating surface openings, plinth heights, building heights and related setbacks. Access regulations for the disabled would also be covered.

Infrastructures Network

The Town Structure Plans would include diagrammatic plans for trunk service network of infrastructure system. These would include:

Storm Drainage: Defines the paths of necessary collection drains and the channels to drain off areas and roads.

Water Supply: Assumptions about the future water consumption and the capacity of the urban structure plan (persons/ha) allow estimating the long-term needs.

Sewerage Management

Electrical Supply

Street Lighting

Solid Waste

Management: Options for a controlled long-term deposit or for a treatment station shall be included.

Underground Utility corridors

The document would also identify and plan for gaps in urban infrastructure in the existing areas. Such systems anomalies will be studied. It is also essential for the health and hygiene of the respective city populations that basic services (potable water, solid waste disposal and sanitation) reach all of the end users, regardless of their socio-economic status.

The elaboration of the structure plans requires a continuous control of its technical practicability.

PHASE II: PREPARATION OF LOCAL AREA PLANS

Objectives:

- To produce local area plans that cover the whole of the municipalities and set out more detailed policies to guide development and control the use of land. The local area plans have to conform to the strategic frameworks of the Structure Plans. The local area plans will detail provisions on how to utilize an area, the plot sizes, plot ratios, building heights, floor area, etc. and thereby regulates future conditions for a specific area.
- The Local Area Plans address important land use issues such as houses that are needed, creating major employment sites, new road proposals, providing for recreation, leisure and shopping, and the disposal of waste. However, new development needs will be balanced by preserving the area's historic, cultural and natural assets, and by creating an environment that promotes the social and economic well – being of local communities.
- To generate ownership for the Local Area Plans through participation of the municipalities /town committees, concerned agencies and the landowners in the preparation and approval of the plan.
- To develop strategies for the implementation of the different plans.

The Local area plans are the planning tool to implement the structure plan in a decisive manner. It constitutes guidelines for the layout of the plots, engineering projects and architectural control. The local area plans set out the future urban appearance in many respects. Therefore it could be the basis for a local building regulation. Its contents can be summarized as follows:

Shape of Settlement

Rights of way, compulsory building lines, the location of buildings etc. will determine the traits of the settlement. The proposed location of new buildings has only an indicative value; scope of freedom for better solutions should be given.

Social Amenities

New trees, parks, stairways, footpaths, public toilets, public fountains, wash places and parking lots among others, shall make the settlements become more convenient.

With regard to the realization of infrastructure, the local area plans also account for some technical aspects such as: rights-of-way, precise alignments of roads and footpaths, the position of the drains and the channels for rainwater etc.

Urban Design

An essential feature of a mature urban agglomeration is that the town center develops in an attractive and cohesive manner. Buildings should not be stand-alone masses surrounded by walls, but rather linked together into a common urban form. Arcades and open plazas, courtyards and gardens should link these spaces together. It is essential that automobiles be parked in pockets and that the core of the city should be the domain of the people. New structures like Town Halls, Public Libraries and other town structures and open spaces should begin the process of realizing such a fabric.

Urban Management System

The Structure Plan will only become operational if it is backed up with an appropriate management system. Land pooling is one management tool, which can be applied. The use of Development Charges where the Municipal Corporation is to make significant investments in area improvements is another. It is essential that the Development Control Rules be integrated with the urban infrastructure plan. Corridors with heavy infrastructure investment and high access to services should have the highest FAR and likewise the highest Land Tax Rate.

An appropriate urban management system will register a limited number of professionally qualified architects and empower them to clear their own plans up to a certain level. Should they misuse this power, they would lose their own plans up to a certain level. Should they misuse this power, they would lose their licenses to practice in Bhutan. Also, small residential structures need not have clearances up to one hundred square meters built-up area and/or ground plus one. These mechanisms would free the local officials to concentrate on the clearances of plans of higher structures and structure where the public gathers, and buildings in the core area. The urban management system will address these and other mechanisms, study their appropriateness in the context of respective municipalities and suggest modalities for their introduction in a phased and sustainable manner, hand-in-hand with civic awareness campaigns.

DELIVERABLES /OUTPUTS

Inception Report - The inception report lays out all of the major aspects of the project, including the actual consultants and supporting personnel who will work on the project, the schedule and the final agreement on deliverables. The inception report also lay out all the responsibilities and duties of the Department of Urban Development and housing, as well as support required from the Municipalities.

Concept Plan - This document is a sketch of the Structure Plan. It includes all of the components of the Structure Plan but there are no dimensions and the decisions are based on hunches and common wisdom. They are not based on analysis, or on a complete analysis of the existing situation, or even on the verified base maps. The idea of the Concept Plan is to introduce the exercise to all stake holders involved in the city's development. The related public discussions introduce concerned citizens to the plan operation and to generate a preliminary discussion about the scope and components of the plan. The exercise will also lay bare all of the biases and mind sets about the plan, which will be useful in further development of the Structure plan. The Concept Plan will clearly state the issues around which further work will evolve and give a direction to the plan. This shall be at a scale of 1:2000.

Base Map - Maps based on the field verification by the team on the survey map or the GISmaps provided by the Dzongkhag/ DUDES.

Existing Infrastructure and services networks map - These maps would document the location of all urban infrastructure networks. There would be a separate map for each of the following:

Water treatment, Storage and Supply, Sewerage collection lines, pumping stations and treatment facilities, Electricity- high and low voltage lines, generating facilities, workshops and circuit panel rooms; Storm drainage lines and related infrastructure; Telephone, cable TV and other communications lines, Street Lighting. This shall be at a scale of 1:2000.

Household Survey - The Consultant will design, conduct, analyze, and prepare a report on a household survey covering sample residents, land occupants, landowners, employers and workers in the area. The questionnaire shall be prepared in consultation with the respective municipality representatives.

Draft Structure Plan - The Draft Structure Plan will be composed of written documents and maps. It will have all the components, which are detailed out in the earlier portion of this ToR. It will be presented at a scale of 1: 2000.

Socio-Economic Environment - It includes the social facilities (schools, health clinics/hospitals, recreational and community facilities); commercial (retail and wholesale), industrial facilities, and employment); government and public institutions; economic base (manufacturing, trade, agriculture) and links to regional economy; relevant community groups; and urban poor.

Detailed Circulation, Mobility and Access Plan - It will include new and upgraded roads and intersections, pedestrian networks, on- and off-street parking facilities; public transport system including bus routes, taxis and stands, pullovers and related facilities (refer Urban Roads Manual, 2002).

Proposed Land-Use /Precincts Plan and the Development Control Regulations - This plan will show the future land use of each plot of land in the city. In each type of land use there will be a schedule of allowed activities. These will be related to each other and the Development Control Rules/Building Bylaws through a Zoning Map. The Land use plan shall be presented at a scale of 1: 2000.

Proposed Natural Environment Protection and Enhancement Zones - It will identify and delineate areas (zones) needing special protection including surface and groundwater supply sources and catchments; soil erosion and landslide prone areas; flood-prone areas; forests; agricultural areas.

It should also identify required measures to mitigate hazards and to protect assets in all protection zones, including permitted/prohibited development and uses.

Proposed Amenities and Services - With reference to precincts, it will identify need for and locate new facilities including schools, health clinics/hospital, sports and recreation, police

quarters, shops, warehouses, and offices. Crematorium sites should also be identified / reviewed.

Proposed Infrastructure and urban services maps - The following will be mapped based on the projected population, demand, capacity proposed options for additional networks and distribution facilities etc:

Water supply and sanitation
Fire fighting facilities
Solid Waste Collection and Disposal System
Utilities Network (Electricity, Telecom, TV cables etc)
Street lighting and underground utilities corridor

Shelter Strategy - This will be prepared based on the housing policies and reports that are available with the agency to address the need for appropriate housing solutions for all, but particularly low, income groups that takes into account affordability, willingness to pay, housing characteristics (type, size, location, service levels, tenure), development options (redevelopment, upgrading, sites and services, new development), financing sources and mechanisms, roles of government and private sector, rate of delivery.

Prioritized Investment Plans - These will include a selected list to be prioritized and developed in consultation with the respective Municipalities, concerned Public works and engineering departments of the RGOB and the respective municipalities will provide cost estimates and financing, and the existing systems of specifications.

When the implementation is based on a program, it will ensure economical investments. The investment plan/implementation plan shall give instructions about:

The priority of each measure

Compulsory need, (1st priority):	Infrastructural projects as a condition to basics needs
Development need, (2nd priority):	Infrastructural projects to promote the local economy.
Desirable needs (3rd priority):	All other infrastructural projects.

- **Executive Body**

The program of implementation must identify the authority in charge of the sector, the running and the maintenance of the infrastructure facilities.

Development Management System - This report will lay out all the mechanisms proposed for the implementation of the Structure Plan. These mechanisms may include the Development Control Regulations, Building Bylaws and mechanisms like land pooling or any other suitable mechanisms. More details have been outlined in the previous sections of this report.

The Final Structure Plans of the Respective Municipalities - The final Structure Plan document will be composed of written documents and maps. The document will cover all of the components or aspects of the Structure Plan, which appear earlier in this TOR. The presentation will be in the form of perfectly bound reports, six for each town or city with maps at a scale of 1:2000 and soft copies.

Local Area Plans

The areas for which the Local Area Plans are to be prepared by the consultant will be discussed and selected based on their potential and importance as determined by the respective municipalities and the DUDES. This local level plan would locate all roads, property boundaries, water supply lines, electric and communications lines, public open spaces, bus stops, neighborhood nodal area with convenience shops, post box, taxi stand, kiosk, park. The plan would show public spaces, public walkways, archery and other sports areas, religious structures and local services, like schools, clinics, and amenities. This would be at a scale of 1:500. The presentation will be in the form of perfectly bound reports, six for each plan with maps at a scale of 1: 2000 and soft copies.

For each local area plan, the consultant will identify the most suitable land development method, **(land acquisition, land pooling or guided land development)** considering the feasibility, physical context and the opinions of the land owners.

The layout plan will be prepared in coordination with the respective municipalities, DUDES and the respective government departments and concerned agencies. The Town Committee will be consulted at all stages of work.

Finalization of the Plans

The Consultant will present the plans and consult with the Client, Land Owners and other relevant stakeholders at least three times (inception, interim and final stage of the plan preparation) as per the work plan. Modifications as required from the feedback shall be carried out with the help of the Local Committee representatives. The revised plan will then be presented to the Town Committees. The Consultant will again carry out modifications until endorsed by the Town Committees. Finally, the Layout Plan shall be presented to the National Consultative Committee on Human Settlements (NCCHS) for final approval.

The final payment will be made only after the approval has been accorded by the National Consultative Committee on Human Settlements. The Consultant will submit the soft copies and hard copies of both the original (raw) data collected during the planning process and the final project after the approval to the DUDES.

Consultation with Municipality/DUDES and the Concerned Agencies

The Consultant, in each stage of the work, is required to maintain close consultation with the respective Municipalities, DUDES and the stakeholder agencies. Any comments, advice and instructions on study/design works should be strictly and immediately executed by the Consultant after the review by the above parties. Coordination meetings with participation of all the consultants will be held every two weeks.

¹¹*(Note: All report maps will be A3 size, municipality 'working' maps will be A0, and the legends are to be readable even in a black and white format)*

Executing Agency - Department of Urban Development and Engineering Services

The Department of Urban Development and Engineering Services (DUDES), RGOB, is the sponsoring agency of the project and as such has the prime responsibility to see that the exercise moves forward. In this regard, the DUDES will support the consultants while they are in the project areas and guide them in every way possible. DUDES must support the project by facilitating meetings with the respective municipalities concerned Departments and other government agencies to obtain data and feedback. DUDES will also provide the consultants with past studies and reports of the cities' development efforts and any other related material. DUDES will read all reports within a reasonable and short period of time and give their feedback to the consultants within a time frame that maintains the project schedule.

Scope of work and work plan

At the outset of the consultancy, the Consultant shall discuss the requirement outlined in this ToR, including expectations to and possible constraints for implementation of the activity, with the DUDES. The outcome of these discussions shall be a Scope of Work paper and a Work Plan prepared by the Consultant and agreed by the DUDES.

The scope of work paper shall specify all activities to be undertaken by the Consultant and the scope of input from the DUDES. It will outline capacity development/training/workshops/meetings activities. During implementation of the activity the scope of work may be elaborated in agreement with the DUDES. This information shall form part of the Inception Report.

Any deviations from the ToR shall be supported by arguments why this has been necessary and convenient and reference to approval of such deviations.

Time Frame

There is an urgency to immediately initiate the plan formulation process. On the other hand planning is a scientific process where critical inputs must come in a sequential pattern.

A detailed timeframe / work plan for the whole process has to be produced before the job starts according to the location, size of the project, deliverables etc.

End of ToR
